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# PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1901.

By Malcolm McNeill.

## January.

The Earth is in perihelion at noon on January 2d, Pacific time.

*Mercury* passed greatest west elongation in December, and is too near the Sun when January begins to be easily seen. It rapidly approaches the Sun, passes superior conjunction on January 21st, and becomes an evening star, but does not recede far enough from the Sun to be seen with the naked eye before the end of the month.

*Venus* is still a morning star, but is gradually overtaking the Sun in its eastward motion, and the distance between the two is diminished from 31° to 23° during the month. The planet moves about 40° eastward from *Scorpio* through the southern extension of *Ophiuchus* to the eastern boundary of *Sagittarius*. It is in conjunction with *Uranus* on January 4th, passing 1° 10′ north, with *Jupiter* on January 15th, passing 0° 22′ north, and with *Saturn* on January 24th, passing 0° 20′ south. It then rises only $1^h$ $20^m$ before sunrise.

*Mars* is gradually approaching opposition, and is beginning to rise at a time suitable for observation before midnight. It moves about 1° eastward in the constellation *Leo* up to January 14th, and then begins to retrograde, moving about 2° westward before the end of the month. In retrograding it follows a path a little north of the one described while it was moving eastward. Its distance from the Earth diminishes from eighty-seven millions to sixty-eight millions of miles, and its brightness increases more than one half.

*Jupiter*, *Saturn*, and *Uranus* are all early-morning objects, and not one of them is well situated for observation. All three passed conjunction with the Sun in December. *Jupiter* rises long enough before sunrise to be easily seen; *Uranus* rises about an hour earlier than *Jupiter*, but cannot easily be made out on account of its faintness; *Saturn* is much nearer the Sun, and can probably not be seen with the naked eye until after the middle of the month.

*Neptune* is a little past opposition with the Sun, and is in good position for evening observation on the border of *Taurus* and *Gemini*, but it needs a telescope to bring it out.

## FEBRUARY.

*Mercury* is an evening star throughout the month, and comes to greatest east elongation on the afternoon of February 19th, but the apparent distance of the planet from the Sun is much less than the average distance at greatest elongation, because the planet is in perihelion on the morning of the same day. It can probably be seen by the naked eye, when the weather conditions are favorable, for a week or two, but the conditions for visibility will be much more favorable during the following greatest east elongation, which is due in June.

*Venus* is still a morning star, but is even nearer the Sun than during January. By the end of the month it is about 14° west of the Sun, and it is also 7° south; so that the interval between the rising of the planet and sunrise is only about half an hour, and the planet will be hard to see.

*Mars* reaches the best position for observation it has given us since its last opposition, a little more than two years ago. It is in opposition with the Sun on the evening of February 21st. As compared with other oppositions, however, this is about the most unfavorable, since the planet comes to aphelion on February 24th, only three days from the time of opposition. Its distance from the earth will then be only a little less than sixty-three millions of miles, whereas during an August opposition the distance is nearly thirty millions of miles less. The brightness of the planet will be only about one fourth of its brightness at a favorable opposition. It will, however, be several times brighter than the first-magnitude star *Regulus*, which is near it. It is in the constellation *Leo*, and moves about 10° westward and southward during the month, and at the end is about 3° east and north of *Regulus*.

*Jupiter*, *Saturn*, and *Uranus* are still in the morning skies, but are farther away from the Sun, and rise nearly two hours earlier than during January. *Jupiter* and *Saturn* are both in *Sagittarius* and are moving eastward, *Jupiter* more than 5°, and *Saturn* about 3°; so that at the end of the month they are less than 7° apart. This distance will still further diminish until the end of April, when the planets begin their retrograde motion. *Uranus* is higher up than *Jupiter* and *Saturn*, a little more than an hour's motion ahead of *Jupiter* and at about the same declination.

*Neptune* is in about the same position between *Taurus* and *Gemini*.

## JANUARY–FEBRUARY, 1901.

### PHASES OF THE MOON, P. S. T.

| | | | | | |
|---|---|---|---|---|---|
| Full Moon . . . . | Jan. | 4, | $4^h$ | $13^m$ | P. M. |
| Last Quarter . . . | Jan. | 12, | 12 | 38 | |
| New Moon . . . | Jan. | 20, | 6 | 36 | A. M. |
| First Quarter . . . | Jan. | 27, | 1 | 52 | |
| Full Moon . . . . | Feb. | 3, | 7 | 30 | |
| Last Quarter . . . | Feb. | 11, | 10 | 12 | |
| New Moon . . . . | Feb. | 18, | 6 | 45 | P. M. |
| First Quarter . . . | Feb. | 25, | 10 | 38 | A. M. |

### THE SUN.

| 1901. | R. A. | Declination. | Rises. | Transits. | Sets. |
|---|---|---|---|---|---|
| Jan. 1, | $18^h 45^m$ | − 23° 2′ | $7^h 27^m$ A.M. | $12^h 4^m$ P. M. | $4^h 41^m$ P.M. |
| 11, | 19 29 | − 21 52 | 7 27 | 12 8 | 4 49 |
| 21, | 20 12 | − 19 59 | 7 22 | 12 11 | 5 0 |
| 31, | 20 54 | − 17 29 | 7 15 | 12 14 | 5 13 |
| Feb. 10, | 21 34 | − 14 29 | 7 4 | 12 14 | 5 24 |
| 20, | 22 13 | − 11 3 | 6 52 | 12 14 | 5 36 |
| Mar. 2, | 22 51 | − 7 21 | 6 37 | 12 12 | 5 47 |

### *MERCURY.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 17 53 | − 24 4 | 6 40 A.M. | 11 12 A.M. | 3 44 P.M. |
| 11, | 19 2 | − 24 15 | 7 7 | 11 40 | 4 13 |
| 21, | 20 12 | − 22 5 | 7 31 | 12 12 P.M. | 4 53 |
| 31, | 21 23 | − 17 21 | 7 44 | 12 43 | 5 42 |
| Feb. 10, | 22 30 | − 10 20 | 7 46 | 1 10 | 6 34 |
| 20, | 23 18 | − 3 0 | 7 20 | 1 10 | 7 0 |
| Mar. 2, | 23 21 | − 0 25 | 6 43 | 12 42 | 6 41 |

### *VENUS.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 16 40 | − 20 55 | 5 13 A.M. | 9 58 A.M. | 2 43 P.M. |
| 11, | 17 33 | − 22 28 | 5 43 | 10 12 | 2 51 |
| 21, | 18 27 | − 22 55 | 5 50 | 10 27 | 3 4 |
| 31, | 19 21 | − 22 12 | 6 1 | 10 41 | 3 21 |
| Feb. 10, | 20 14 | − 20 22 | 6 7 | 10 55 | 3 43 |
| 20, | 21 6 | − 17 33 | 6 8 | 11 7 | 4 6 |
| Mar. 2, | 21 55 | − 13 54 | 6 5 | 11 17 | 4 29 |

### *MARS.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 10 58 | + 10 9 | 9 42 P.M. | 4 17 A.M. | 10 52 A.M. |
| 11, | 11 1 | + 10 9 | 9 6 | 3 41 | 10 16 |
| 21, | 11 0 | + 10 37 | 8 25 | 3 1 | 9 37 |
| 31, | 10 54 | + 11 33 | 7 36 | 2 16 | 8 56 |
| Feb. 10, | 10 43 | + 12 51 | 6 41 | 1 26 | 8 11 |
| 20, | 10 29 | + 14 17 | 5 44 | 12 33 | 7 22 |
| Mar. 2, | 10 14 | + 15 35 | 4 39 | 11 33 | 6 27 |

### *JUPITER.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 17 43 | − 23 5 | 6 24 A.M. | 11 1 A.M. | 3 38 P.M. |
| Feb. 1, | 18 12 | − 23 9 | 4 51 | 9 28 | 2 5 |
| Mar. 1, | 18 34 | − 22 59 | 3 23 | 8 0 | 12 37 |

### *SATURN.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 18 34 | − 22 37 | 7 13 A.M. | 11 52 A.M. | 4 31 P.M. |
| Feb. 1, | 18 49 | − 22 24 | 5 26 | 10 5 | 2 44 |
| Mar. 1, | 19 0 | − 22 10 | 3 47 | 8 27 | 1 7 |

### *URANUS.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 16 52 | − 22 31 | 5 31 A.M. | 10 10 A.M. | 2 49 P.M. |
| Feb. 1, | 16 59 | − 22 42 | 3 37 | 8 15 | 12 53 |
| Mar. 1, | 17 2 | − 22 47 | 1 51 | 6 29 | 11 7 A.M. |

### *NEPTUNE.*

| | | | | | |
|---|---|---|---|---|---|
| Jan. 1, | 5 49 | + 22 11 | 3 46 P.M. | 11 6 P.M. | 6 26 A.M. |
| Feb. 1, | 5 46 | + 22 11 | 1 40 | 9 0 | 4 20 |
| Mar. 1, | 5 45 | + 22 11 | 11 49 A.M. | 7 9 | 2 29 |

### ECLIPSES OF *JUPITER'S* SATELLITES, P. S. T.

(Off left-hand limb as seen in an inverting telescope.)

| | | | | | |
|---|---|---|---|---|---|
| II, D, Jan. | 13, | $5^h$ $0^m$ A.M. | II, D, Feb. | 7, | $1^h$ $59^m$ A.M. |
| I, R, | 16, | 2 52 | I, D, | 8, | 3 1 |
| III, D, | 16, | 6 23 | II, D, | 14, | 4 33 |
| I, D, | 23, | 4 46 | I, D, | 15, | 4 55 |
| I, D, | 30, | 6 39 | III, D, | 21, | 2 12 |
| | | | III, R, | 21, | 4 45 |
| | | | I, D, | 22, | 6 49 |
| | | | I, D, | 24, | 1 18 |
| | | | I, D, | 28, | 6 10 |

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